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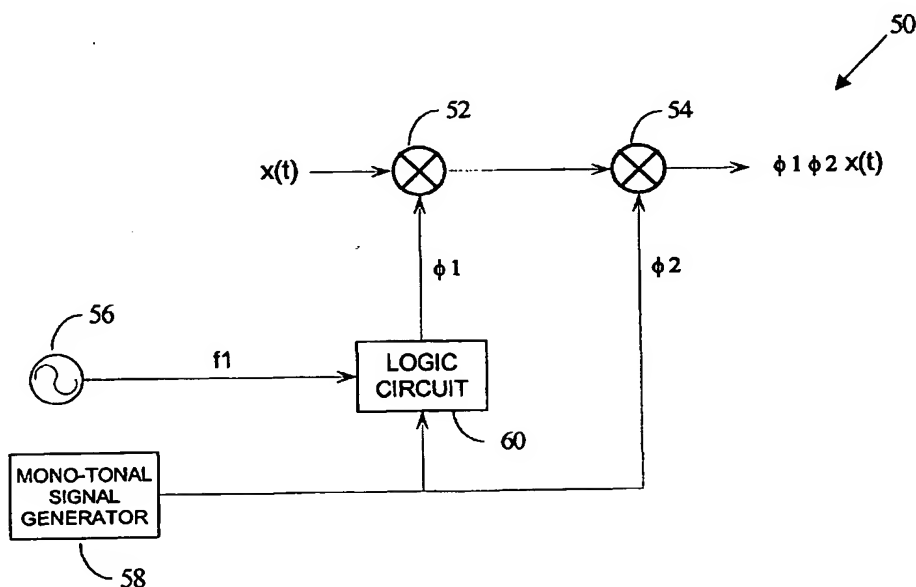
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(54) Title: METHOD AND APPARATUS FOR DOWN CONVERSION OF RADIO FREQUENCY (RF) SIGNALS



(57) Abstract: There is a need for an inexpensive, high-performance, fully-integrable, multi-standard transceiver, which suppresses spurious noise signals. The invention provides a topology that satisfies this need, using a first signal generator which produces an oscillator signal f_1 and a second signal generator which produces a mono-tonal mixing signal ϕ_2 , where f_1 is a multiple of the frequency of ϕ_2 ; and a logic circuit for generating a multi-tonal mixing signal ϕ_1 , where $\phi_1 * \phi_2$ has significant power at the frequency of said local oscillator signal being emulated, neither of said ϕ_1 nor said ϕ_2 having significant power at the carrier frequency of said input signal $x(t)$ or said LO signal being emulated.